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WHAT IS CLAIMED IS:

1 A1 > 1. A method of securing a polymeric member to a metallic member in
2 a high strength fluid tight relationship comprising:
3 a) mounting the polymeric member against the metallic
4 member; and
5 b) hot pressing the polymeric member against the metallic
6 member at a temperature above the glass transition temperature and
7 below the melting point of the polymeric material of the polymeric member
8 while subjecting the polymeric material to plastic deformation.

Sub B2

1 2. The method of claim 1 wherein the polymeric member is a tubular
2 element with an inner lumen extending therethrough and at least part of the
3 metallic member is disposed within the inner lumen of the polymeric member and
4 the polymeric material surrounding the metallic member is hot pressed against
5 the portion of the metallic member within the inner lumen.

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1 A2 > 3. The method of claim 1 wherein the polymeric material from which
2 the polymeric member is formed is a thermoplastic polymer selected from the
3 group consisting of polyetheretherketone, polyetheramide, polyphenylene
4 sulfide and polysulfone.

1 4. The method of claim 1 wherein the hot pressing of the polymeric
2 member against the metallic member includes placing a heat shrinkable member
3 about the polymeric member and the metallic member, heating the heat

4 shrinkable member to shrink said member against the polymeric and metallic
5 members, causing the temperatures of both the polymeric and metallic members
6 to increase to a temperature above the glass transition temperature of the
7 polymeric material and apply adequate pressure to cause the polymeric member
8 to be plastically deform and bond to the metallic member.

1 Sub B 4
2 5. The method of claim 4 wherein the heat shrinkable member is
3 removed from the junction between the polymeric material and the metallic
member.

6. The method of claim 4 wherein the heat shrinkable member is a
polymeric collar.

Sub B 5
7. The method of claim 4 wherein the polymeric collar is formed of a
fluoropolymer.

8. An intravascular catheter with an elongated shaft comprising:
a) an elongated metallic tubular member having proximal and
distal ends and an inner lumen extending between the proximal and distal
ends;
b) a polymeric tubular member having proximal and distal ends
and an inner lumen extending between the proximal and distal ends; and
c) a hot pressed bond between one part of the metallic tubular
member and one part of the polymeric tubular member.

1 9. The intravascular catheter of claim 8 wherein the polymeric
2 material is a thermoplastic polymer selected from the group consisting of
3 polyetheretherketone, polyetheramide, polyphenylene sulfide and polysulfone.

1 10. The intravascular catheter of claim 8 wherein the one end of the
2 polymeric tubular member is disposed about and hot press bonded to the
3 exterior of one end of the metallic tubular member.

1 11. A balloon dilatation catheter comprising:

2 a) an elongated proximal shaft section formed at least in part of
3 a metallic tubular member having proximal and distal ends and an inner
4 lumen extending between the proximal and distal ends;

5 b) an elongated distal shaft section formed at least in part of a
6 polymeric tubular member having proximal and distal ends and an inner
7 lumen extending between the proximal and distal ends;

8 c) a hot pressed bond between part of the metallic tubular
9 member and part of the polymeric tubular member; and

10 d) an inflatable dilatation balloon on the distal shaft section
11 having an interior in fluid communication with the inner lumen of the
12 polymeric tubular member.

1 12. An intravascular catheter with an elongated shaft comprising:

- 2 a) an elongated metallic tubular member having proximal and
3 distal ends and an inner lumen extending between the proximal and distal
4 ends;
5 b) a polymeric adapter having proximal and distal ends and an
6 inner lumen extending between the proximal and distal ends; and
7 c) a hot pressed bond between the proximal end of the metallic
8 tubular member and the distal end of the polymeric adapter.

1 13. The intravascular catheter of claim 12 wherein the distal end of the
2 polymeric adapter is bonded to the exterior of the proximal end of the metallic
3 tubular member.

1 14. The intravascular catheter of claim 13 wherein the inner lumen of
2 the metallic tubular member is in fluid communication with the inner lumen of the
3 adapter.

- 1 15. A rapid exchange type balloon dilatation catheter comprising:
2 a) an elongated proximal shaft section formed at least in part of
3 a metallic tubular member having proximal and distal ends and a first
4 inner lumen extending therein;
5 b) an elongated distal shaft section, which is formed at least in
6 part of a polymeric tubular member, having proximal and distal ends, a
7 first port in the distal end and a second port spaced proximal to the distal
8 end, a dilatation balloon with an interior, a second inner lumen extending

9 therein which is in fluid communication with the first inner lumen in the
10 metallic tubular member and the interior of the dilatation balloon and a
11 third inner lumen which is in fluid communication with the first and second
12 ports; and

13 c) a hot pressed bond between part of the metallic tubular
14 member and part of the polymeric tubular member.

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